

DISSECTING THE ISSUE OF UNCLAIMED BODIES IN MEDICAL EDUCATION

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Abstract

There is nothing inherently morally wrong with using cadavers for medical education. In fact, body donations are encouraged to ensure that each future generation of doctors are able to learn human anatomy directly from the source and, in turn, be able to better treat their live patients. However, unbeknownst to most of the public, some of the cadavers used in anatomical labs are not donated. This means they did not explicitly consent to have their bodies be dissected post-mortem. Anatomy teachers realize the potential moral distress this might cause to medical students leading some to neglect informing students about the use of unclaimed bodies. And, like in most of history, the poor and the criminals were the first to fall victim to the trend of being used for autopsies. Not only is this unjust, but it created a norm for medical schools to use unclaimed bodies without worry for repercussion.

The main hurdle to overcome is the topic of whether or not it is unethical to use unclaimed bodies for medical education, as well as the moral responsibilities we have to the deceased. It is unethical because it is unjust (since it disproportionately targets people of lower socioeconomic class) and it is disrespectful (since the explicit consent of the individual before death is not provided). Potential solutions include putting a system in place, not unlike that of organ donations. If the supply of cadavers increases, then the demand for unclaimed bodies will decrease. A system will also make the public more aware of the unethical treatment of unclaimed bodies, leading to more research on public opinion (which is lacking).

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Introduction

“...while people only live for a relatively brief period of time, they remain dead eternally.

Whatever moral claims people may have in terms of how things go after they die, then, they may prove to be uniquely long-lasting. And dead people, unlike living people, can’t stand up for themselves” – David Boonin (2019)

“If dead bodies cannot be procured, it will be impossible for the pupils to learn anatomy, and without anatomy neither surgeons or physicians can practice with the least prospect of benefitting their patients.” – Unknown (1824)

The use of cadavers for dissection have come to be considered an essential, if somewhat controversial, part of medical education. All medical students are required to take a hands-on anatomy dissection class and it is considered a rite of passage for many aspiring doctors. Dissecting a formerly living individual allows medical students to not only improve their knowledge of how the human body works, but also exposes them to the reality of death in a more intimate setting. Despite the value placed on cadaveric dissection, a few medical schools have been slowly removing the practice, turning to 3D virtual models and physical replicas of body organs to show students a more realistic representation of what a *living* human body looks like (Gholipour 2019). And since most medical students will end up interacting with live patients, there is a worrisome disconnect with having their “first patient” be a preserved, deceased body (McMenamin 2018). Even though technology has advanced to the point where students can access 3D models on their phones or use other substitutes such as life-like dummies, there are concerns that it would not be the same as experiencing an actual dissection of the human body. For instance, with cadavers, students are able to see “authentic anatomy” and get as accurate a

training as they can (McMenamin 2018). Would you rather have a surgeon who only studied anatomy through virtual models or one that has experience with actual (albeit dead) bodies?

I do not dispute the importance of cadavers in medical education – rather, I question how medical schools acquire cadavers. Cadavers for anatomy labs are procured in one of two ways: 1) the person, when alive, had filled out a short form consenting to the donation of their body for science and medical education or 2) the body had become a “donor by circumstance” (which is a nicer way of saying “no one came to claim this body and a practical and optimal way of disposing it is to donate it”). The use of “donors by circumstance” or, as they will be referred to in the rest of this paper, “unclaimed bodies”, for medical education raises ethical concerns about respect and moral obligations to the deceased individual. In this paper, I explore several possibilities for resolving the ethical debate surrounding unclaimed bodies and discuss challenges to implement the solutions.

What is an Unclaimed Body?

An unclaimed body is a deceased individual without anyone to claim it. This results from three scenarios: 1) the family decides not claim the body, agreeing to leave their deceased relative as a property of the state to be disposed of, or used by whatever law is set in place, 2) the family would prefer to claim the body, but cannot because, for example, they lack the financial resources to claim the body or have a funeral, leaving disposition to be regulated by the law, and 3) no matter how much searching is done, the deceased cannot be identified, leading to unknowns about they want their body to be processed post-mortem. While the first scenario could raise some concern about family obligations to the deceased, it is the latter two scenarios that lead to the ethical concerns and conflicts considered by medical institutions. For scenario two, it is an injustice to the families who are already suffering to be further distressed by their

inability to control what is done to their loved one's body after they are deceased. For scenario three, the deceased preferences are unknown and there is no known living relative to speak on their behalf. So how did we get to this point of using unclaimed bodies for medical education? Better yet, why do we even value human dissection in medical education?

History of Cadaver Use for Medical Education

The first known written record of anatomy originated from ancient Egypt, dated early 1800 B.C. (Loukas et al. 2011); it detailed some of humanity's first interactions with human organs via preservation of the human body. Through their dissections, embalmers were "exposed to human topography and structure both internally and externally" and what they were able to understand about the human body exceeded that of what could have been "learned from any civil life or war injuries" (Loukas et al. 2011). Transcripts of their recordings indicated an advanced understanding of the brain and of the cardiovascular system, paving the way for future understandings of the human body (Loukas et al. 2011). The first record of an anatomical school was in Alexandria, where King Ptolemy I allowed live legal dissections on condemned criminals in the name of knowledge (Loukas et al. 2011, Siddiquey et al. 2009). However, after the burning of Alexandria, human dissection became prohibited by Roman law and the Church. This ban caused scholars at the time to turn to animal dissection instead. The main contributor to anatomy during this time period was Galen, a Greek physician, who dissected monkeys and pigs to in order to better understand and treat his human patients. His findings, known as Galenism, became the major school of thought for practitioners until around the sixteenth century (Laurenza 2012).

The Renaissance period is seen as a transition from the middle ages to modern times. It is during this period where anatomy resurfaced and "became something of a popular science, and

public dissections of executed criminals were must-see events” (Laurenza 2012). Vesalius, author of one of the most influential books on human anatomy, *On the Fabric of the Human Body*, challenged Galen’s findings by performing dissections on humans, documenting his findings, and comparing them with the anatomical drawings of Galen. Another Renaissance man, Leonardo da Vinci, also studied human anatomy via dissection to better his art and satisfy his curiosity about how the body works. Through his dissections, da Vinci first documented arteriosclerosis, a heart disease where the walls of the artery thicken and harden, restricting blood flow and possibly leading to death (Isaacson 2017). This highlighted the importance of human dissection for human health. At this time, cadavers available for dissection were limited to criminals. Since death by hanging was still the norm, it was easy for artist-anatomists, like Vesalius and da Vinci, to acquire a cadaver and draw their observations through dissection (Siddiquey et al. 2009). This led to an increase in scientists and artists alike vying to be the first to document anatomical knowledge on paper as they realized the value dissection held to a better understanding of the human body and medical practice.

The frenzy to document anatomy coincided with the arrival of the printing press. Anatomical drawings were able to be circulated to other anatomists-to-be, leading to a spike in the study of anatomy (Laurenza 2012, Siddiquey et al. 2009). Medical schools were able to use these drawings to teach students, and in turn, cadavers were in high demand to allow students to apply the technical knowledge from the drawings to real bodies. It became a rite of passage for medical students to perform a dissection to learn anatomy during their first year in medical school. The idea of donating one’s body for science was not common then, most likely because there was not a high demand for cadavers at the time. Medicine was still a growing field and the norm was to use the bodies of criminals to advance scientific discovery. However, there are only

so many criminals who die, so institutions had to turn to other methods to get cadavers. For the US, that meant grave robbing.

Public Concern for the Ethicality of Dissection

At first the public turned a blind eye to rumors of grave robbing, as it mainly affected the poor and the black (Lovejoy 2014). Sure, the idea of anatomical dissection was hard to accept for some, but at least it was not harming anyone *they* (the majority white public) knew. It is important to understand the public view of dissection in general at this time. Dissection (especially when done to criminals) was permissible since it “could be understood as a punishment for life’s sins and a preparation for hell”; likewise, there was “nothing unethical” about poor and black graves being robbed for the benefit of medical education (Lovejoy 2017). It was only until an announcement was made about a white woman’s body being robbed from her grave that the public began to pay attention (Lovejoy 2014). This is important because it highlights the injustice and racism the minority face, even now, and how they have no voice when speaking up about what is done to their bodies. Their unclaimed bodies.

As moral concern for the treatment of the deceased began to surface, the public began to suspect where medical schools were procuring bodies as there were no “regulated source of bodies for dissection” at the time (Lovejoy 2014). That speculation led to the conclusion that medical students were not just using cadavers of criminals for medical education purposes. Allegations of gravedigging and doctors turning a blind eye to the origins of *fresh bodies* (read: murder) for anatomy labs began to surface, further straining the relationship between medical education and the public (Dasgupta 2004). Whether or not the allegations were true did not matter to the already suspicious public. In light of these accusations and public outrage regarding “apparent desecration of the dead” (once again highlighting the importance the majority felt

about respecting the dead), riots broke out in the US with people breaking into hospitals, “ransacking the rooms and forcing the doctors and students to flee” and setting medical equipment on fire (Lovejoy 2017).

To appease the rioters, a series of anatomy acts were passed to protect those who were buried by legalizing the use of unclaimed bodies and criminals (as opposed to illegally using them) (Dasgupta 2004, Siddiquey et al. 2009). This did not satisfy the demand for cadavers though. Therefore, to further provide legal cadavers for medical education purposes, the Uniform Anatomical Gift Act (UAGA) of 1968 was passed in the US that allows a person to donate their body to medical institutions for the purpose of organ procurement and/or dissection.

Even now, many researchers and practitioners claim that, while textbooks and technology can supplement anatomical education, a hands-on study of anatomy is irreplaceable for the understanding of how the body works (Memon 2018, Patel et al. 1015, Turney 2007). This means that there is still a high demand for cadavers. Unfortunately, despite the UAGA and subsequent increase in body donations to medical institutions, there are still upwards of 40% of body shortages in medical schools (Kean 2020). Given this demand, it is not surprising that unclaimed bodies are still permitted to be used in medical schools in the US.

Another reason why it might not seem like an issue to use unclaimed bodies is that it offers an easy solution to the growing problem that is overcrowded morgues. Currently, there is no uniform system set in place by federal law on how to process unclaimed bodies, leaving the states in charge. However, not all states have procedures, leaving the decision to individual medical examiners. More specifically, only fourteen states (including the District of Columbia) take on the task of disposing UBs and provide funding, from as low as \$450 and a simple cremation to upwards of \$1800 and a proper burial, to aid in disposition of the bodies (Friesen

2019). Even with funds being provided, states run out. For instance, West Virginia, who's policy requires upwards of \$1250 be allocated per UB and a burial in cloth- or moleskin covered casket and "has the highest rate of opioid deaths in the United States, has run out of funds two years in a row" (Friesen 2019, Waters 2019). For states that do not provide funding, the burden falls on counties, cities, and towns, many of which are already financially strapped, and leads to unfortunate ways of storage. Places like Los Angeles and New York City have a system worked out (cremation and storage for 3 years for the former and mass burial in a potter's field for the latter), but other areas, like Detroit, are forced to stash them in "refrigerated semitrailer in a back parking lot, a last resort usually reserved for disasters like Hurricane Maria" among other procedures (Waters 2019).

So, there is not only a high demand for cadavers in medical education, but there is a growing supply of unclaimed bodies. Students get to have their experience and the disposal of bodies is made easier. It seems like a win-win situation. This leads us to the question: why exactly is using unclaimed bodies for dissection wrong?

Current Views of Anatomy Professors

In a 2018 survey distributed to all medical schools in the US, anatomy course leaders were asked to share their opinions on the use of unclaimed bodies in their lab and whether they would inform students taking the lab that the body they are dissecting could potentially be unclaimed (Caplan & DeCamp 2019). 11 schools out of the 89 (12.4%) that responded reported potential use of unclaimed bodies in their lab, an 8% decrease from the last survey conducted on unclaimed body use in medical school labs (Caplan & DeCamp 2019, Liles & Ross 1998). Survey participants generally held the opinion that "use of unclaimed bodies is less desirable than willed body donation" suggesting that it is preferable for individuals to provide consent

before their bodies are used for dissection (Caplan & DeCamp 2019). The evidence of a decrease in use can be explained by 1) an increase in body donations, 2) public backlash against the use of unclaimed bodies due to cases of families discovering the fates of their loved ones too late, and 3) the potential for ethical concerns that push schools to disallow unclaimed bodies, despite body donation shortages. However, the main concern from this survey is not that there are still schools that permit the use of unclaimed bodies; rather, the greater concern is that anatomy course leaders who use unclaimed bodies believe it is “less important to inform students” that the cadaver in class could be an unclaimed body (Caplan & DeCamp 2019). The idea that it would be best to not inform students is justified by the claim that the information would “stir controversy”, which in itself is a controversial position (Caplan & DeCamp 2019). Not informing students about the use of unclaimed bodies “reflect hidden worries about unclaimed body use” (Caplan & DeCamp 2019). Hiding an issue because it might be controversial could exacerbate controversy and backlash if it were ever to come to light. There is also potential for students to be morally distressed upon learning that the body they used was unclaimed and did not consent to be dissected, especially since overall preference for the procurement of cadavers is willed donation. What exactly is the origin of, and potential solution to, the “controversy” regarding whether or not to acknowledge the use of unclaimed bodies?

Ethical Concerns and Conflicts in using Unclaimed Bodies

The use of unclaimed bodies poses challenges to two ethical principles: justice and respect for persons. The principle of justice is concerned with preventing the exploitation – among other things – of vulnerable populations. As previously mentioned, there has already been a history of exploiting vulnerable population for dissection since the public was not moved to action when only the poor and black graves were being robbed. Likewise, unclaimed bodies are

more likely to come from lower-socioeconomic and minority populations. Many of these individuals were either homeless (leaving no fast way to locate a family member after death) or their families were unable to pay to claim and bury them (leaving the deceased in the custody of the state and disposed of through the laws set in place). In fact, for most of the unclaimed bodies in the US, “the identity of the victim is known, but coroners or funeral directors can’t contact the next of kin... or the next of kin was reached and... can’t afford to bury it” (Waters 2019). Therefore, we ought not to use unclaimed bodies for medical education because it disproportionately targets vulnerable and marginalized populations, which is unjust.

The principle of respect for persons is violated because the deceased’s wishes are unknown, and consent cannot be obtained from them. Now, one might argue that it does not matter what happens to the person after they die since they are not conscious or aware of what is happening to their body. They are not considered “persons” in the traditional sense, as they are no longer moral agents or “sentient” beings with wills, values, and cognitions. To refute this point, I will draw parallels from Maggie Little’s, “The Moral Permissibility of Abortion”. Little argues that the fetus, while some may consider to not be a person, is still deserving of a special type of respect since it has the capacity of “early human life” (Little 2005). Independent of the circumstances surrounding the act of abortion (and independent of one’s stance on abortion), it can be agreed that the fetus should still be treated with some semblance of respect. Little focuses on how much capacity a moral agent has, suggesting that since a fetus has the *capacity* of being a moral agent in the future, it deserves respect regardless of whether or not the fetus ever does become a moral agent. That is, it is disrespectful to think of tacking an embryo up on the wall as a piece of art or providing them for children to dissect at school (Little 2005). Likewise, a similar train of thought can be followed for end-of-life treatment of unclaimed bodies. An individual at

the end of their life is still a moral agent. After they pass away, the deceased body should be respected since it once had the capacity of a moral agent. Even if some may not consider a dead body to be a person, it is still deserving of respect for the person they once were.

What differs between Little's argument and mine is that a fetus is unable to "provide consent" as they are unable to make decisions for themselves. So, by default, it is disrespectful to the fetus if their remains were to be handled inconsiderately. Prior to losing the capacity of being a moral agent, an individual can give consent for what they believe to be respectful treatment of their corpse. That means tacking a corpse up on the wall as a piece of art or providing them for medical students to dissect in anatomy labs is only disrespectful if their consent was not explicitly given.

Possible Solutions

The ultimate means of honoring the principle of respect for persons would be to obtain consent for cadaveric donation before death – i.e., to have a system in place, not unlike having an organ donor sticker on the driver's license, that allows those involved to know how to dispose of an unclaimed body. It will take time for a system to be accepted by the public, as concerns about the organ donor sticker and medical bias hinder people from even considering organ donation. A common misconception and fear that the public has is that, if one were to arrive in critical condition at the hospital and the medical professional in charge saw that the patient was an organ donor, they would not "try as hard" to save them since there is a high demand for organs. Therefore, we need to consider other indicators of respect.

Current practices that can aid in respecting a (dead) person is to treat the cadaver with respect through rituals. It is like asking for forgiveness since permission is not able to be obtained. There has been a movement in anatomy classes to include "the ethical care for

anatomical bodies and the focus on respect for and dignity of the body” in the curriculum (Kahn et al. 2017). There is no opposition to the obligation of fulfilling the wishes of the deceased if they are known. But when their wishes are unknown, we should still be able to respect the body left behind regardless if they consented to have their body be used for education. People pay respects to the body all the time. Some cultures have holidays dedicated to respecting the deceased, for instance the Day of the Dead (Día de Muertos) in Mexico and Qingming Festival (清明节) in China (McDonald 2013).

In general, most people, especially those with religious views, have a preference for how their body ought to be disposed of after they are deceased. For more devout Muslims, “mutilation, and thus cremation, is strictly prohibited” and bodies must be buried on the same day they were announced dead (Daar & Al Khitamy 2001). This would not work for dissections, as that would mutilate the body (strike 1), remains of the cadaver post-dissection will be cremated (strike 2), and an anatomy course would not occur in 24 hours (strike 3). For practicing Jews, cremation is also not allowed, and bodies are traditionally buried within 24 hours (Rabbi Black). Unfortunately for the unclaimed, there is no way to respect personal practices, religious or otherwise. While some people might claim that it does not matter what happens posthumously because the deceased individual is not around to experience the effects (i.e., no longer a moral agent), one should still protect and respect their posthumous interests. That is doable by the idea of symmetry: “when the interests of the living and the dead are the same, they should be treated symmetrically” (Wilkinson 2002). That is to say, understanding that there is a symmetry between the interests of the dead and the living can help guide us in making decisions about protecting the dead (Wilkinson 2002). If a consensus can be made about what the reasonable person wishes to happen to them after death, we can generalize this wish to unclaimed bodies via symmetry. The

interests in this case are what happens to one's body when there is no one to represent their values. There seems to be little known about people's sentiment towards human dissections and body donations, but it can be inferred that, due to body donations as an opt-in framework, the default is not to assume people would be comfortable with having their bodies dissected.

A parallel can be drawn with organ donation. According to statistics from the Health Resources & Services Administration, 95% of polled U.S. adults support organ donation, although only 58% are actually signed up as donors (organdonor.gov 2019). An explanation for this disparity could be that although people believe organ donation to be altruistic and thus the morally right thing to do, they personally do not want to donate their own organs. Likewise, it is possible that people agree that medical schools need body donations in order to better the education of medical students but are uncomfortable having their body be the one on the dissection table. Thus, through symmetry, it can be assumed that a deceased individual would not want their body to be donated to medical education. However, some may argue that deceased individuals would rather have their body donated to science than stored in a freezer or mass buried with other unclaimed bodies. When asked about the usage of unclaimed bodies for dissection, most people are only aware of two possible options: to be dissected or to not be dissected. They are unaware of what "to not be dissected" means and they might find it more undignified to be mass buried than to be dissected by students for the sake of their education.

Conclusions (and further musings)

Knowing the history of anatomy and the importance of human dissection can aid in understanding why cadavers for medical education are still in high demand. However, I have argued that it is unethical to allow the supply to include unclaimed bodies because it violates the principles of respect for persons and justice. Dissecting an unclaimed body can also cause moral

distress in students, as well as controversy among the public. There is already distrust dating back to grave-robbing and exploiting the poor in order to satisfy the demand for cadavers. As such, the most ethical choice would be to stop using unclaimed bodies for medical education and research. Although the use of cadavers in medical education is morally justifiable, it is better to invest resources to increase the number of voluntary donors. More research should be done on understanding public preference on body donations. Such insights may help increase body donations and lower the need for unclaimed bodies.

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Biographical Statement

Stephanie Yiyan Mou was born August 11, 1997 in Tucson, Arizona. Her family moved up to Phoenix, Arizona for her primary education. She then spent one year in China (2009) before finishing her secondary education back in Arizona. She attended the University of Arizona as the class of 2019 where she pursued a double major (in Evolutionary & Ecology Biology and Mathematics) and double minor (in Computer Science and Health & Human Values). Stephanie has participated in two paid internships throughout her undergraduate education: the first at the Translational Genomics Research Institute as a Helios Scholar in a pancreatic cancer lab and the second at Paradise Valley Community College as a pilot intern for a program looking into institutional effectiveness. For her honors thesis, Stephanie shadowed student clinics at the Han University of Traditional Medicine and wrote about the differences and similarities between Western and Eastern medicine, as well as her own experience with both schools of thought in her everyday life. It was through this experience that brought Stephanie to pursue a Master of Bioethics at Johns Hopkins Berman Institute of Bioethics and Johns Hopkins Bloomberg School of Public Health.